



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/560,767	12/13/2005	Eugene S. Rubin	20030073	5153
22590	7590	05/06/2010		
BAE SYSTEMS PO BOX 868 NASHUA, NH 03061-0868			EXAMINER BONZELL, PHILIP J	
			ART UNIT 3644	PAPER NUMBER
			MAIL DATE 05/06/2010	DELIVERY MODE PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/560,767

Applicant(s)

RUBIN, EUGENE S.

Examiner

PHILIP J. BONZELL

Art Unit

3644

Period for Reply -- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 13 March 2009.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-3, 5-9, 14, 16-18 and 20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-3, 5-9, 14, 16-18, and 20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB06)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

1. Claim 16 recites the limitation "the additive" in line 2. There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-3, 7-9, 14, 16-18, and 20 are rejected under 35 U.S.C. 103 (a) as being unpatentable over Bull (US Patent #5136295) in views of Carlson (US Patent #6683555), Czamecki (US Patent #6267039) and Loucks (US Patent #5269132).

- a. For Claims 1, 3, 7-9, 14, 17, 18, and 20, figure 6 of Bull '295 discloses an aircraft (18) that has a deployed multiple decoys (22) that are towed by fiber optic cables (20) of various lengths having termination points a distance from a terminating point of other fiber optic cables during at least one aircraft flight time period. Figure 13 discloses powering the decoy with a laser source (40) within the aircraft and an amplifier (35) that increases the outgoing signal so that it is

stronger than that of the aircraft. While Bull '295 discloses using a warning system (26) to know when to power the decoy system it is silent about the actual deployment and retraction of the towed decoy, figure 4 of Carlson '555 teaches the ability to deploy and retract a towed decoy at anytime based on the warning receiver (100). Therefore it would have been obvious to someone of ordinary skill in the art at the time of the invention to modify Bull '295 with the deployment and retraction abilities of Carlson '555 in order to allow the aircraft to have the decoy out only when necessary to increase vehicle performance when it is not needed.

b. While Bull '295 teaches the use infrared to send information and power in figure 13, it converts the infrared signal into radio frequencies of varying power levels or bands at the same time to attract an RF missile. Both Bull '295 and Carlson '555 are silent about the decoy being infrared, figure 4 of Czamecki '039 teaches directly radiating infrared energy into the atmosphere, infrared as a heat source decoy which allows for in incoming missile to lock on to a fake signature which is of a magnitude greater than the infrared signature of the aircraft and hit a sacrificial portion of the aircraft so that it can remain flight worthy even after a missile hit. Therefore it would have been obvious to someone of ordinary skill in the art at the time of the invention to modify Bull '295 and Carlson '555 with the infrared signature of Czamecki '039 in order to deceive incoming IR missiles.

c. Bull '295, Carlson '555, and Czamecki '039 are silent about masking the infrared signature engine. However, the abstract of Loucks '132 teaches, "the

apparatus consists of a plurality of overlapping hollow panels each having a truncated cone shape supplied with a liquid coolant such that the coolant absorbs heat from the surfaces of the panels and converts the liquid to a vapor. The vapor created by this heat absorption is injected from an end opening of a panel between the panels and the exhaust gases of the jet engine to form a boundary layer". Therefore it would have been obvious to someone of ordinary skill in the art at the time of the invention to modify Bull '295, Carlson '555, and Czarnecki '039 with the engine mask of Loucks '132 in order to reduce the infrared signature of the engine so that incoming missiles are less attracted to it.

d. For Claim 2, while Bull '295 is silent about the height that the aircraft is when the decoy is deployed, the Examiner takes Official Notice that it is well known to deploy a decoy at any height when it is needed including at 10,000 ft. Therefore it would have been obvious for a person of ordinary skill in the art at the time of the invention to deploy the decoy at approximately 10,000 ft.

e. For Claim 16, while Loucks '132 discloses using water, it is silent about using multispectral water, however it would have been obvious to someone of ordinary skill in the art to use multispectral water or a variety of oil additives as is well known in the art to reduce the IR signature of an aircraft.

3. Claims 5 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bull (US Patent #5136295) in views of Carlson (US Patent #6683555), Czarnecki (US

Patent #6267039), and Loucks (US Patent #5269132) as applied to claim 1 above, and further in view of Sweeny (US Patent #6055909).

- a. For Claim 5, Bull '295, Carlson '555, Czamecki '039, and Loucks '132 are silent about the use of rapid modulation to increase the intensity of the decoy, however, column 8, lines 36-42 of Sweeny '909 teaches, "Varying the intensity of the IR radiation intensity emitted by the decoy can be used to deceive the seekers of some missile employing intensity discriminants other than just the centroid scheme described above. In one preferred IR radiation intensity modulation pattern depicted in FIG. 4, the radiant intensity is varied from somewhat higher to somewhat lower than the aircraft engine's IR signature". Therefore it would have been obvious to someone of ordinary skill in the art at the time of the invention to modify Bull '295, Carlson '555, Czamecki '039, and Loucks '132 with the modulation of Sweeny '909 in order properly avoid a missile strike.
- b. For Claim 6, Bull '295, Carlson '555, Czamecki '039, and Loucks '132 are silent about increasing the exhaust obscurant. Column 1, lines 22-24 of Loucks '132 teaches "injecting various coolants into the engine combustion chambers", and Claim 1 teaches, "controlling the supply of liquid coolant". Therefore it would have been obvious to someone of ordinary skill in the art at the time of the invention to modify Bull '295, Carlson '555, Czamecki '039, and Loucks '132 with the controlling of exhaust obscurant as taught in Loucks '132 in order to mask the

infrared signature of the engines in order to reduce the risk of missiles being attracted to the aircraft.

Response to Arguments

4. Applicant's arguments filed 12/3/2009 have been fully considered but they are not persuasive.

a. With respect to the first argument on page 13 that there is no suggestion, teaching or motivation that the laser source powered IR decoy infrared signature is of a magnitude greater than the infrared signature of the aircraft, the Examiner respectfully disagrees. First it should be pointed out that only the infrared signature of the aircraft it claimed which could be any portion of the aircraft or the entire aircraft itself, therefore it is inherent that the Bull '295 reference discloses that the RF signature created in the decoy is greater than that of the nose of the aircraft and Czarnecki '039 is the same with an IR signature. Secondly it is inherent that the signature created by the decoy is greater than the aircraft as if it were less the incoming missile would not be attracted to the decoy as the aircraft would still be a stronger source that draws the missile to it.

b. With respect to second argument on page 13 that there is no suggestion, teaching or motivation to produce a decoy infrared signature to direct an incoming guided infrared missile away from an aircraft infrared signature and to the decoy infrared signature that utilizes the combination of a decoy and an aircraft engine obscurant system, the applicant respectfully disagrees. Bull '295

clearly discloses using a decoy system to attract an incoming RF missile to an RF decoy and Czarniecki '039 clearly teaches using IR as a decoy for an IR missile in order to protect the aircraft, in addition Loucks '132 clearly discloses how an obscurant can be used to reduce the IR signature of an aircraft's engines. Therefore for it would have been obvious to someone of ordinary skill in the art at the time of the invention to combine the systems to make a more efficient and safer system to avoid missiles.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to PHILIP J. BONZELL whose telephone number is (571)270-3663. The examiner can normally be reached on M-Th 8-5;.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Mansen can be reached on (571)272-6608. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/PHILIP J BONZELL/
Examiner, Art Unit 3644

pjb
/Tien Dinh/
Primary Examiner, Art Unit 3644